

1.           A device for delivering a fluid to an interior space of a tooth,  
the device comprising:

                  a dispensing chamber having a first portion adapted to receive  
a fluid material, and a second portion;

5                   a fluid material conduit having a first end in fluid  
communication with said first portion of said dispensing chamber and a  
second, open end;

                  a piston positioned generally between said first and second  
portions of said dispensing chamber and configured for movement into the  
10 first portion to discharge the fluid material from said dispensing chamber  
through said second open end of said fluid material conduit; and

                  a vacuum conduit having a first end in fluid communication  
with the second portion of said dispensing chamber and a second, open  
end, wherein movement of said piston draws air from the second, open end  
15 of the vacuum conduit toward the first end of the vacuum conduit as the  
fluid material is moved by the piston toward the second, open end of the  
fluid material conduit.

2.           The device of claim 1, further comprising:  
a sealing surface disposed proximate said second, open ends  
of said vacuum and fluid material conduits and operative to at least assist in  
forming a substantially airtight seal between the vacuum and fluid material  
5   conduits and the interior space of the tooth when said vacuum and fluid  
material conduits are placed in fluid communication with the interior space  
of the tooth.
3.           The device of claim 1, wherein said dispensing chamber  
contains said fluid material.
4.           The device of claim 3, wherein said fluid material is a filler  
material.
5.           The device of claim 3, wherein said fluid material is cleaning  
fluid.
6.           The device of claim 3, wherein said fluid material is a sterilizing  
fluid.

7.           A device for delivering a fluid to an interior space of a tooth,  
the device comprising:

                  a dispensing chamber having an interior adapted to receive a  
fluid material;

5               a first conduit having a first end in fluid communication with  
said dispensing chamber and a second open end;

                  a first piston disposed within said dispensing chamber and  
configured for movement to discharge the fluid material from said  
dispensing chamber through said second open end of said first conduit;

10              a second piston disposed within said dispensing chamber in  
spaced relation to said first piston, the second piston having a vent  
passage, said second piston being disposed within said dispensing chamber  
and moveable so as to expel air between the first and second pistons  
through the vent passage;

15              a second conduit having a first end in fluid communication  
with the interior of said dispensing chamber and a second open end such  
that movement of said second piston draws air from the second open end  
toward the first end of the second conduit as air is simultaneously  
evacuated from the space between the first and second pistons through  
20              said vent passage until said second piston moves said first piston to expel  
the fluid material from the second open end of the first conduit;

                  a sealing surface disposed proximate said second open ends of  
said first and second conduits and operative to at least assist in forming a

substantially airtight seal between the first and second conduits and the  
25 interior space of the tooth when said first and second conduits are placed in  
fluid communication with the interior space of the tooth.

8.           The device of claim 7, wherein the sealing surface is on an annular seal attached to the second ends of said first and second conduits.
9.           The device of claim 7, wherein the dispensing chamber is positioned within an integrally formed body.
10.          The device of claim 7, wherein said first and second pistons are configured such that said second piston begins to create a vacuum in the pulp chamber prior to the expulsion of the fluid material from said dispensing chamber and said first conduit into the interior space of the tooth.
11.          The device of claim 7, wherein said second piston is operatively coupled to a plunger and said plunger further comprises a rod with at least one thumb pad, and said dispensing chamber is positioned in a body having at least one finger grip for allowing leverage to be applied by  
5   an operator as said plunger is manually depressed into said dispensing chamber.
12.          The device of claim 11, wherein said plunger is rigidly attached to said second piston.
13.          The device of claim 7, wherein said dispensing chamber contains said fluid material.

14. The device of claim 13, wherein said fluid material is a filler material.

15. The device of claim 13, wherein said fluid material is cleaning fluid.

16. The device of claim 13, wherein said fluid material is a sterilizing fluid.

17. A method of delivering a fluid material to an interior space of a tooth using a device including a piston disposed within a chamber generally between a first portion of the chamber containing the fluid material and a second portion of the chamber, the method comprising:

- 5 coupling a fluid material conduit and a vacuum conduit in a sealed manner with an opening of the tooth leading to the interior space, the first and second portions of the chamber respectively being in fluid communication with the fluid material conduit and the vacuum conduit;
- moving the piston to at least partially evacuate the interior
- 10 space by drawing air from the interior space into the vacuum conduit; and
- moving the piston to dispense the fluid material from the first portion of the chamber into the interior space.

18. The method of claim 17, wherein the interior space includes the root canals of the tooth.

19. The method of claim 17, wherein the interior space includes the pulp chamber of the tooth.

20. The method of claim 17, wherein a pre-vacuum is established within the interior of the tooth prior to dispensing the fluid material into the interior of the tooth.